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Director
STIC

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-Machine Translation Information/Background:

-Internet Sites as Sources for Translations:

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- Evaluation Form:

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 - Any portion of a reference relied upon for a final rejection or appeal should be confirmed by a human translator, even if it is only a confirmation by a human translator of the accuracy of the MT translation. The confirmed translation of a disputed portion should preferably be included in the next office action.
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Translation of French Patent Document No. 2,129,807

Inventor: Pierre Avril et al.

Applicant: Jeumont-Schneider

Int. Cl: G01 g 11/00

Priority Date: N/A

Date of Application: March 15, 1971

Date of Publication: November 3, 1972, B.O.P.I. "Listes"

Original French Title: Procédé et despositif de pesage continu de charges sur un transporteur à bande.

METHOD AND DEVICE FOR CONTINUOUSLY WEIGHING LOADS ON A CONVEYOR BELT

The present invention relates to a method and device for continuously weighting loads on a conveyor belts which eliminates the influence of the conveyor belt on the weighed quantity.

It is known that in weighing systems for loads of loose bulk material transported on a conveyor belt, such as the systems used especially on extraction-measuring feeders, a portion of the loaded conveyor is weighed by arranging between two support rollers or between two cylinders an intermediary roller which is supported by a lever which acts as a scale

member.

Since, on in the course of this weighing operation not only a certain portion of the load, but also the section of the belt which serves as the receptacle of the load is weighed and since this weight is not insignificant, the result is that the precise net weight of the load is not known.

In fact, the major portion of weighting error is due to the variations in weight of the conveyor belt and to deposits of dust on the levers of the load weighing system. It is therefore appropriate to permanently counterbalance the conveyer belt.

However, known continuing weighing apparatuses do not allow such counterweight to be permanently carried out. Rather, it is accomplished in an intermittent manner by freeing the belt of all materials and rotating the latter empty for a predetermined number of complete revolutions in order to allow the operator to compensate for the effects of accumulation or wear by means of a mechanical or electrical auxiliary device and to return the weight of the belt to the original value at the start of the weighing process.

This operation requires a certain length of time, and the major drawback is having to stop the transport of the product on the belt during the counterweighing operation or to stop the installations to which the belt is

connected.

It is the object of the present invention to provide a process and a device which allows to remedy this drawback by permanently compensating possible variations in the weight of the conveyor belt, and to accomplish this without the movement of the products on the belt.

The invention relates primarily to a continuous weighing process of loads on a conveyor belt in which, in addition to the normal measurement of the weight on the loaded belt, the weight of the belt is also measured at one point on the empty return trip, and the latter measure is subtracted from the weight on the loaded belt.

The invention also relates to the device using this method, i.e., a continuous weighing device for loads on a conveyor belt which is equipped with a continuous weighing system for the loaded belt and comprising, on the one hand, in association with said weighing system, a second continuous weighing system which is arranged at a point along the return path of the empty belt and measuring the actual weight of the empty belt and, on the other hand, means for subtracting the second weight from the first in such a way as to permanently compensate for the possible variations in weight of the conveyor belt.

The invention will be better understood with help of the embodiment and the accompanying drawing in which the sole Figure illustrates an extraction-measuring feeder for loose bulk materials, although the invention is applicable to any other continuous weighing apparatuses as well.

The extraction-measuring feeder comprises two cylinders 1 and 2 which are mounted on a non-illustrated chassis. One of the cylinders 1 is driven by a variable-speed motor M.

The endless conveyor belt 3 runs over two cylinders, which ensure the extraction of the products **P** at different quantities by means of the hopper 4, and moves these products in the direction of the arrow **f** between the two cylinders 1 and 2. Downstream of the hopper 4, a weighing member is arranged which comprises a weighing roller 5, which is subjected to the weight on the loaded belt 3 and is supported on a lever 6 which pivots about a fixed shaft 7 and transmits the force to a stationary sensor 8 which emits an electrical signal proportional to the force applied to the weighing roller 5.

A similar system having identical features to the one described above, but marked with the letter **a**, are disposed on the return path 3a of the empty belt and transmit to a sensor 8a the effort exerted by the empty belt on the roller/weighing unit 5a.

The display of sensor 8a is fed from that of sensor 8 into a known subtraction member 9 and permanently displays the net weight of the load or of the loose bulk material **P** that is being transported by the conveyor belt 3.

The weighing members illustrated schematically in the drawing have merely been described as non-limiting examples. Any other known weighing devices allowing the practical realization of such a subtraction of measurements may also be utilized.

The invention does not only apply to extraction-measuring feeder but also to weighing machines with subtraction devices and flow meters.

CLAIMS

1. Method for continuously weighing loads on a conveyor belt in which, in addition to the normal continuous measurement of the weight on the loaded belt, the continuous measure of the weight of the belt is measured at a point along the empty return path, and this latter measurement is subtracted from that of the weight of the loaded belt.

2. A continuous weighing device for loads on a conveyor belt which is equipped with a continuous weighing system for the loaded belt and comprises, on the one hand, in association with said weighing system, a

second continuous weighing system which is arranged at a point along the return path of the empty belt and measures the actual weight of the empty belt and, on the other hand, means for subtracting the second weight from the first in such a way as to permanently compensate for the possible variations in weight of the conveyor belt.

US Patent and Trademark Office
S.T.I.C. Translations Branch
Martha Witebsky - March 12, 2001

Translation of French Patent Document No. 2,129,807

Inventor: Pierre Avril et al.

Applicant: Jeumont-Schneider

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with a continuous weighing system for the loaded belt and comprising, on the one hand, in association with said weighing system, a second continuous weighing system which is arranged at a point along the return path of the empty belt and measuring the actual weight of the empty belt and, on the other hand, means for subtracting the second weight from the first in such a way as to permanently compensate for the possible variations in weight of the conveyor belt.

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US Patent and Trademark Office
S.T.I.C. Translations Branch
Martha Witebsky - March 12, 2001

①⑨ RÉPUBLIQUE FRANÇAISE

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DE LA PROPRIÉTÉ INDUSTRIELLE

PARIS

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①③
**DEMANDE
DE BREVET D'INVENTION**

1^{re} PUBLICATION

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④① Date de la mise à la disposition du
public de la demande..... B.O.P.I. — «Listes» n. 44 du 3-11-1972.

⑤① Classification internationale (Int. Cl.) **G 01 g 11/00.**

⑦① Déposant : JEUMONT-SCHNEIDER, résidant en France.

Titulaire : *Idem* ⑦①

⑦④ Mandataire :

⑤④ Procédé et dispositif de pesage continu de charges sur un transporteur à bande.

⑦② Invention de : Pierre Avril et Henri Niclas.

③③ ③② ③① Priorité conventionnelle :

Vente des fascicules à l'IMPRIMERIE NATIONALE, 27, rue de la Convention - PARIS (15^e)

L'invention concerne un procédé et un dispositif de pesage continu de charges sur un transporteur à bande, dans lequel on élimine l'influence du poids de la bande transporteuse sur la pesée.

5 On sait que dans les systèmes de pesage continu de charges ou de produits en vrac véhiculés sur un transporteur à bande, systèmes utilisés notamment dans le cas des extracteurs-doseurs continus, on procède à la pesée d'un tronçon de bande chargé en disposant entre deux rouleaux supports ou entre deux tambours un
10 rouleau intermédiaire dit rouleau-peseur qui prend appui sur un levier actionnant un organe de pesée.

Comme au cours d'une telle pesée on mesure non seulement une certaine portion de la charge mais également le tronçon de bande qui lui sert de réceptacle et dont le poids n'est pas négligeable, il en résulte que le poids net de la charge n'est pas connu avec une grande précision.

En effet, la majeure partie des erreurs de pesée est due aux variations de poids de la bande transporteuse, variations dues à l'encrassement ou à l'usure de ladite bande et aux dépôts de
20 poussières sur les leviers du système de pesage des charges. Il conviendrait donc de tarer en permanence la bande transporteuse.

Or, avec les appareils connus de pesage continu, un tel tarage ne peut pas être effectué en permanence; il se fait de façon intermittente en vidant la bande de toutes matières et en
25 faisant tourner cette dernière à vide pendant un certain nombre de révolutions complètes afin de permettre à un opérateur de compenser les effets de l'encrassement ou de l'usure par un dispositif auxiliaire mécanique ou électrique et de ramener le poids de la bande à sa valeur d'origine au début de la pesée.

30 Cette opération nécessite un certain temps et a comme inconvénient majeur l'arrêt de l'écoulement du produit sur la bande pendant tout le tarage, d'où l'arrêt correspondant des installations auxquelles la bande est liée.

Le but de la présente invention est de fournir un procédé et un dispositif permettant de pallier cet inconvénient grâce à une compensation permanente des variations éventuelles de
35 poids de la bande transporteuse et cela sans arrêter l'écoulement de produits sur ladite bande.

L'invention concerne tout d'abord un procédé de pesage
40 continu de charges sur un transporteur à bande dans lequel, outre

la mesur normale continue du poids de la bande chargée, on effectue la mesure du poids de la bande en un point de son chemin de retour à vide, et la soustraction de cette dernière mesure à celle du poids de la bande chargée.

5 L'invention concerne également le dispositif utilisant ce procédé, c'est-à-dire un dispositif de pesage continu de charges sur un transporteur à bande, muni d'un système de pesage continu de la bande chargée et comportant d'une part, en association avec ledit système de pesage, un second système de pesage continu
10 disposé en un point du chemin de retour à vide de ladite bande et mesurant le poids réel de la bande vide, d'autre part des moyens pour soustraire la seconde pesée de la première, de manière à compenser en permanence les variations éventuelles de poids de la bande transporteuse.

15 L'invention sera mieux comprise à l'aide d'un exemple de réalisation et du dessin annexé dont la figure unique représente schématiquement un extracteur-doseur de produits en vrac, bien que l'invention soit applicable à tous autres appareils de pesage continu.

20 L'extracteur-doseur est constitué par deux tambours 1 et 2 montés sur un châssis non représenté sur le dessin. L'un des tambours 1 est entraîné par un moteur M à vitesse variable.

La bande sans fin 3 défilant sur les deux tambours assure l'extraction des produits P à doser déversés par la trémie 4,
25 et véhicule ces produits dans le sens de la flèche f entre les deux tambours 1 et 2. En aval de la trémie 4 est situé un organe peseur constitué par un rouleau peseur 5 soumis au poids de la bande chargée 3 et prenant appui sur un levier 6 articulé autour d'un axe fixe 7 et transmettant l'effort à un capteur fixe 8 émet-
30 tant un signal électrique proportionnel à l'effort appliqué sur le rouleau-peseur 5.

Un système semblable, dont les repères correspondants sont les mêmes que précédemment mais affectés de l'indice a, est disposé sur le chemin de retour 3a de la bande à vide et transmet
35 à un capteur 8a l'effort exercé par la bande à vide sur le rouleau-peseur 5a.

L'indication du capteur 8a est retranchée de celle du capteur 8 dans un organe soustracteur 9 de type connu indiquant en permanence le poids net de la charge ou des produits en vrac
40 P véhiculés par la bande transport us 3.

Les organes-peseurs représentés schématiquement sur le dessin n'ont été décrits qu'à titre d'exemple non limitatif. Tout autre organe peseur de type connu permettant la réalisation pratique d'une telle soustraction des mesures de poids peut également être utilisé.

L'invention s'applique non seulement à des extracteurs-doseurs, mais également à des balances intégratrices et des débitmètres, par exemple.

REVENDICATIONS

- 1.- Procédé de pesage continu de charges sur un transporteur à bande dans lequel, outre la mesure normale continue du poids de la bande chargée, on effectue la mesure continue du poids de la bande en un point de son chemin de retour à vide et la soustraction de cette dernière mesure à celle du poids de la bande chargée.
- 5
- 2.- Dispositif de pesage continu de charges sur un transporteur à bande, muni d'un système de pesage continu de la bande chargée, caractérisé en ce qu'il comporte d'une part, en association avec ledit système de pesage, un second système de pesage continu disposé en un point du chemin de retour à vide de ladite bande et mesurant le poids réel de la bande vide, d'autre part des moyens pour soustraire la seconde pesée de la première de manière à compenser en permanence les variations
- 10
- 15 éventuelles de poids de la bande transporteuse.

